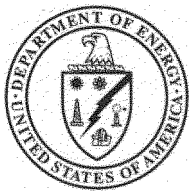
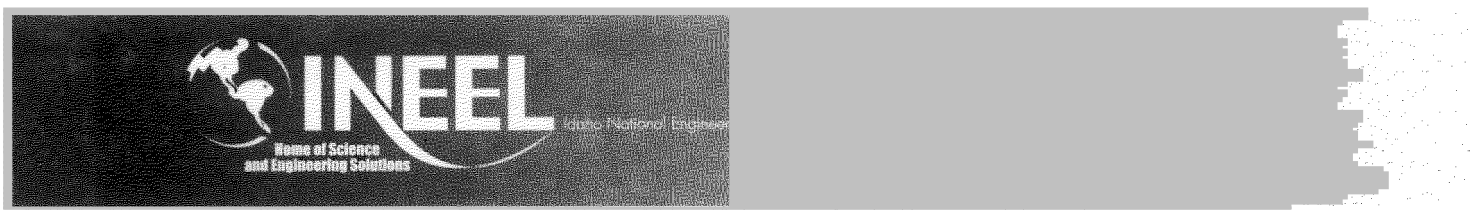
DOE/ID-11102
December 2003



U.S. Department of Energy
Idaho Operations Office

Operations and Maintenance Plan for Operable Units 6-05 and 10-04, Phase I



DOEAD-11102
Project No. 23368

Operations and Maintenance Plan for Operable Units 6-05 and 10-04, Phase I

December 2003

Prepared for the
U.S. Department of Energy
Idaho Operations Office

ABSTRACT

This Operations and Maintenance Plan describes the long-term remedial design/remedial action activities for Phase I of Waste Area Groups 6 and 10, Operable Unit 10-04 at the Idaho National Engineering and Environmental Laboratory (INEEL). These activities are divided into four phases. Phase I involves implementing institutional controls for Operable Unit 10-04 sites and implementing an INEEL Sitewide institutional controls plan and a long-term ecological monitoring plan. Because this limited scope does not involve construction activities typical of remedial action at Comprehensive Environmental Response, Compensation, and Liability Act sites at the INEEL, elements pertaining to construction are not included in this plan. Phase II will remediate sites contaminated with trinitrotoluene and Royal Demolition Explosives. Phase II will remediate lead contamination at a gun range, and Phase IV will remediate hazards from unexploded ordnance.

Phase I activities for Operable Unit 10-04 include removal or isolation of surface ordnance and explosives discovered during routine operations that, based on expert evaluation, pose an unacceptable near-term physical hazard. This is a condition negotiated by the U.S. Environmental Protection Agency, the Idaho Department of Environmental Quality, and the U.S. Department of Energy—hereafter called the Agencies—and documented in the *Operable Units 6-05 and 10-04, Experimental Breeder Reactor-I/Boiling Water Reactor Experiment Area and Miscellaneous Sites, Remedial Design/Remedial Action Scope of Work*, because the phased approach to remediation postpones remediation of sites contaminated with surface ordnance.

Contact with surface ordnance and explosives is considered more likely than for buried items and, hence, can present a significant physical hazard; therefore, a safety assessment will be performed for the identified surface ordnance and explosives. A decision to remove, detonate in place, or isolate the identified items before remediation of sites contaminated with ordnance and explosives will be based on the determined hazard level. Any items determined to pose an unacceptable near-term physical hazard will be removed and disposed of by detonation, detonated in place, or isolated and posted with signs. Such actions occurring during Phase I will not initiate full remediation of these areas, since full remediation will be performed in subsequent phases.

Since this condition was negotiated by the Agencies during development of the *Operable Units 6-05 and 10-04, Experimental Breeder Reactor-I/Boiling Water Reactor Experiment Area and Miscellaneous Sites, Remedial Design/Remedial Action Scope of Work*, applicable or relevant and appropriate requirements were not established for preremediation removal, in place detonation, or isolation of ordnance and explosives in the *Record of Decision—Experimental Breeder Reactor-I/Boiling Water Reactor Experiment Area and Miscellaneous Sites, Operable Units 6-05 and 10-04*. However, the same requirements specified in the *U.S. Department of Energy Idaho Operations*

Office, Lead Agency Action Memorandum Time-Critical Removal Action for Unexploded Ordnance, Operable Unit 10-04, Idaho National Engineering and Environmental Laboratory will be followed, which include applicable or relevant and appropriate requirements, environmental protection, health and safety, and waste-management measures.

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FIGURES

TABLES

ACRONYMS

BORAX	Boiling Water Reactor Experiment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	U.S. Department of Energy
EBR-I	Experimental Breeder Reactor I
EOD	explosive ordnance disposal
EPA	U.S. Environmental Protection Agency
HSO	health and safety officer
INEEL	Idaho National Engineering and Environmental Laboratory
MDA	Mass Detonation Area
NE-ID	U.S. Department of Energy Idaho Operations Office
NOAA	National Oceanic and Atmospheric Administration
NODA	Naval Ordnance Disposal Area
O&M	operation and maintenance
OMRE	Organic-Moderated Reactor Experiment
ou	operable unit
RDX	Royal Demolition Explosive
STF	Security Training Facility
TNT	trinitrotoluene
UXO	unexploded ordnance
WAG	waste area group

Operations and Maintenance Plan for Operable Units 6-05 and 10-04, Phase I

1. INTRODUCTION

Remediation for Operable Units (OUs) 6-05 and 10-04, hereafter referred to as OU 10-04, at the Idaho National Engineering and Environmental Laboratory (INEEL) is divided into four phases. Phase I consists of developing and implementing institutional controls at OU 10-04 sites and developing and implementing an INEEL Sitewide institutional controls plan and long-term ecological monitoring plan. Removal, in place detonation, or isolation of surface ordnance and explosives—which include unexploded ordnance (UXO) and trinitrotoluene (TNT)/Royal Demolition Explosive (RDX) fragments identified during routine operations at the INEEL, and that are determined through a safety assessment by explosives experts to pose an unacceptable near-term physical hazard—also will be performed in Phase I. Phase II will remediate sites contaminated with TNT and RDX. Phase III will remediate lead contamination at a gun range, and Phase IV will address hazards from UXO. Separate remedial design/remedial action work plans and operation and maintenance (O&M) plans will be submitted for each remediation phase. The scope and schedule for implementing these remediation phases are presented in the *Operable Units 6-05 and 10-04, Experimental Breeder Reactor-I/Boiling Water Reactor Experiment Area and Miscellaneous Sites, Remedial Design/Remedial Action Scope of Work* (DOE-ID 2003).

This site-specific O&M Plan describes the long-term activities and procedures required to satisfy requirements of the *Record of Decision—Experimental Breeder Reactor-I/Boiling Water Reactor Experiment Area and Miscellaneous Sites, Operable Units 6-05 and 10-04* (DOE-ID 2002) and the *Operable Units 6-05 and 10-04, Experimental Breeder Reactor-I/Boiling Water Reactor Experiment Area and Miscellaneous Sites, Remedial Design/Remedial Action Scope of Work* (DOE-ID 2003) for Phase I remediation at each of the following areas:

- Ordnance areas, which include the Naval Gun Range, Twin Buttes Bombing Range, and the Arco High-Altitude Bombing Range
- TNT/RDX-contaminated soil sites, which include the Field Station, Fire Station, Land Mine Disposal Area, National Oceanic and Atmospheric Administration (NOAA), and Naval Ordnance Disposal Area (NODA)
- Security Training Facility (STF) -02 Gun Range
- Boiling Water Reactor Experiment (BORAX) II–V leach pond
- BORAX I buried reactor
- BORAX ditch
- BORAX II–V reactor building
- Experimental Breeder Reactor (EBR) -I fuel oil tank
- Organic-Moderated Reactor Experiment (OMRE) leach pond

- Juniper Mine.

The Phase I O&M activities described in this plan include maintenance of institutional control requirements at OU 10-04 sites listed previously, INEEL-wide long-term ecological monitoring, and removal, in place detonation, or isolation of ordnance and explosives that are discovered during routine operations and that present an unacceptable near-term physical hazard. The institutional control requirements are based on provisions in the "Idaho National Engineering and Environmental Laboratory Sitewide Institutional Controls Plan for CERCLA Response Actions (Draft),"[a] while the ecological monitoring requirements are specified in the *Long-Term Ecological Monitoring Plan for the Idaho National Engineering and Environmental Laboratory* (INEEL 2003). The basis for removal, detonation in place, or isolation of ordnance and explosives determined to pose an unacceptable near-term physical hazard is a qualitative safety/hazard assessment that considers the likelihood of encounter with ordnance and explosives and the likelihood and severity of an unintentional detonation. The intent of such removal actions is to address imminent safety hazards and not to remediate conditions that can be deferred for hture remedial action phases. Therefore, any removal or isolation of surface ordnance and explosives during Phase I remediation will not necessarily initiate a survey for detection and removal/isolation of other TNT/RDX fragments or UXO, as these actions will be performed during remediation Phases II and IV, respectively.

As remediation under Phases II through IV is completed for OU 10-04 sites, the O&M requirements will be modified based on the residual levels of contamination. Considering the available state-of-the-art ordnance and explosive detection and removal technologies, it is usually not possible to confirm that all (100%) ordnance and explosives have been identified and, therefore, removed from a site at the completion of remediation. For this reason, it is expected that institutional controls will be required after remediation of the ordnance areas and TNT/RDX-contaminated soil sites, since undetected subsurface UXO and TNT/RDX fragments could remain. Because it is expected that lead contamination at the STF-02 Gun Range will be remediated to allow unrestricted use, institutional controls will not be required at this site after remediation. Institutional controls will be maintained at the remaining seven sites until it is determined during a 5-year review that institutional controls are no longer required.

The basic elements of this O&M Plan are organized as follows:

- **Section** 2—This section provides background information on the nature of contamination at each site and a description of the current controls

- **Section** 3—This section describes the requirements for institutional controls, environmental monitoring, site-specific operations and maintenance, and 5-year reviews

- **Section** 4—This section describes operations and maintenance implementation, including organization, responsibilities, and requirements for conducting monitoring, maintenance, and inspections

- **Section** 5—This section summarizes the reporting requirements for institutional controls, environmental monitoring, site-specific operations and maintenance, and 5-year reviews

- **Section** 6—This section lists the references cited in this report.

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a. DOE-ID, 2003, "Idaho National Engineering and Environmental Laboratory Sitewide Institutional Controls Plan for CERCLA Response Actions (Draft)," DOE-ID-1 1042, Revision A, U.S. Department of Energy Idaho Operations Office, December 2003.

In accordance with the *Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory* (DOE-ID 1991), the U.S. Department of Energy (DOE) will submit an O&M report to the U.S. Environmental Protection Agency (EPA) and the Idaho Department of Environmental Quality once the O&M activities have been completed.

2. BACKGROUND

Between the 1950s and 1980s, research activities at the INEEL left behind contaminants that pose risks to human health and the environment. A comprehensive remedial investigatiodfeasibility study was performed to determine the nature and extent of contamination at the Waste Area Group (WAG) 6, OU 6-05 EBR-1/BORAX and WAG 10, OU 10-04 miscellaneous sites. The investigation is detailed in the *Comprehensive Remedial Investigation/Feasibility Study for Waste Area Groups 6 and 10 Operable Unit 10-04* (DOE-ID 2001).

Waste Area Group 6 consists of sites related to EBR-I and BORAX, which are located close together in the southwest portion of the INEEL (Figure 2-1) and have similar operational backgrounds and contamination sources. The EBR-I reactor was the first reactor built at the INEEL. In 1951, EBR-I became the first reactor in the world to generate electricity from nuclear power. Of the many buildings that once made up the EBR-I complex, only the original reactor building (now a national historic landmark) and associated structures remain.

The BORAX facility included five experimental reactors, built between 1953 and 1964, for research in generating electricity using boiling-water reactors. During research on reactor safety, the BORAX-I reactor was intentionally destroyed in 1954, and its burial location underwent final remediation in 1996 (DOE-ID 2001). All other facilities at BORAX have been removed, areas requiring remediation have been addressed, and institutional controls have been instituted as necessary.

Waste Area Group 10, OU 10-04 includes miscellaneous INEEL sites outside the other WAGs at the INEEL (WAGs 1–9). Operable Unit 10-08, which was added to address INEEL-wide groundwater issues and potential new sites, also is included in WAG 10. Operable Unit 10-08 is responsible for evaluating the INEEL-wide groundwater concerns and new sites that are passed to WAG 10 by other WAGs and for preparing the OU 10-08 Comprehensive Remedial Investigation/Feasibility Study and Record of Decision. Therefore, OU 10-04 will not address INEEL-wide groundwater issues and potential new sites. Figure 2-2 shows the INEEL with the WAG 10, OU 10-04 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites.

Within OU 6-05 and OU 10-04, 16 sites require institutional control, which will be implemented during Phase I remediation. Some of these sites will require O&M activities. The following sections provide a historical synopsis of the sites, including O&M requirements where applicable. Detailed descriptions of each site are provided in the OU 10-04 Record of Decision (DOE-ID 2002).

2.1 Ordnance Areas

2.1.1 History

The ordnance areas include three extensive artillery testing and bombing ranges used by the U.S. Navy and U.S. Army Air Corps during World War 11. They are the Naval Gun Range, which encompasses 172,495 acres along the INEEL's central corridor; the Arco High-Altitude Bombing Range, which is a 26,406-acre area to the west; and the Twin Buttes Bombing Range, which encloses 9,291 acres on the INEEL's southeast periphery.

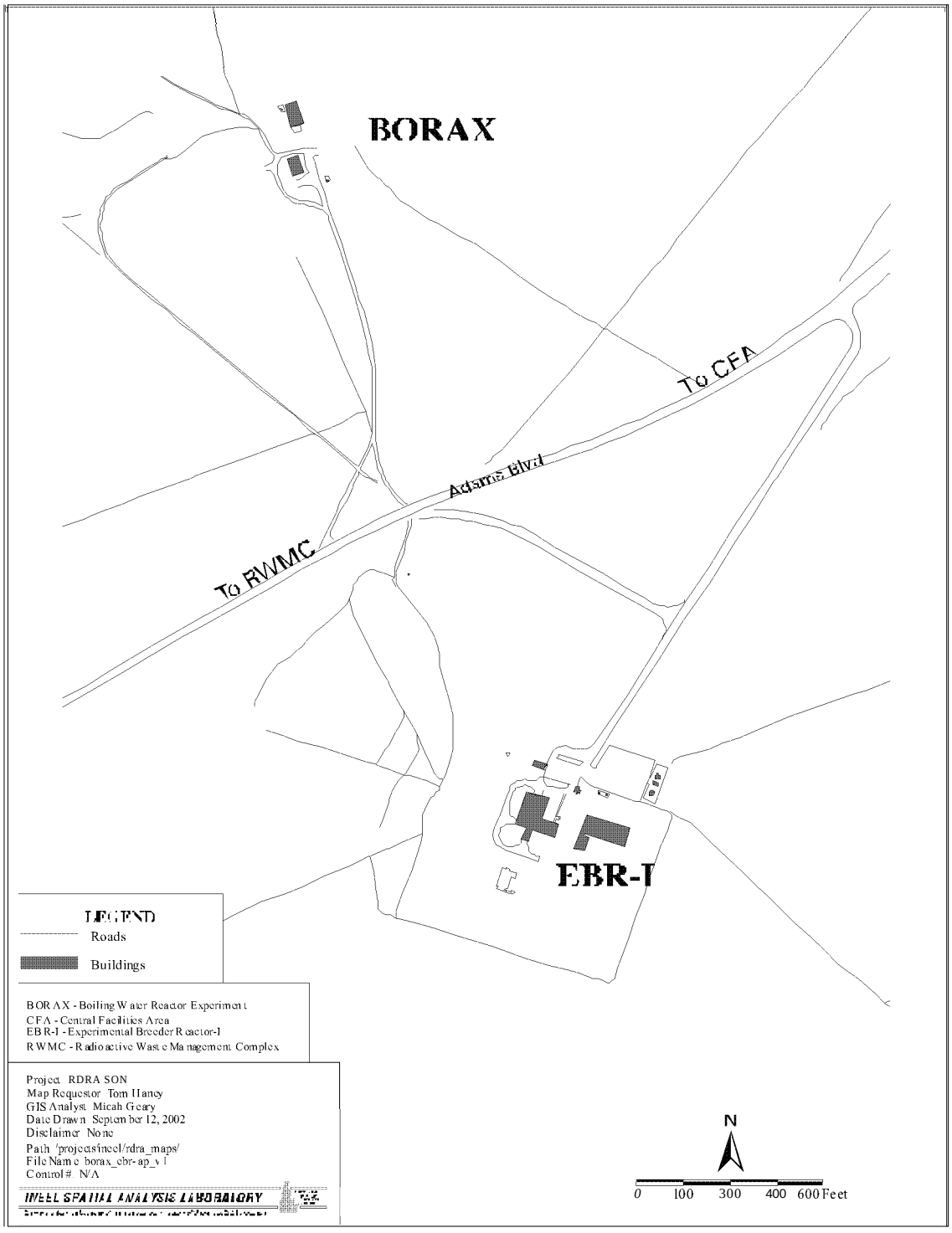
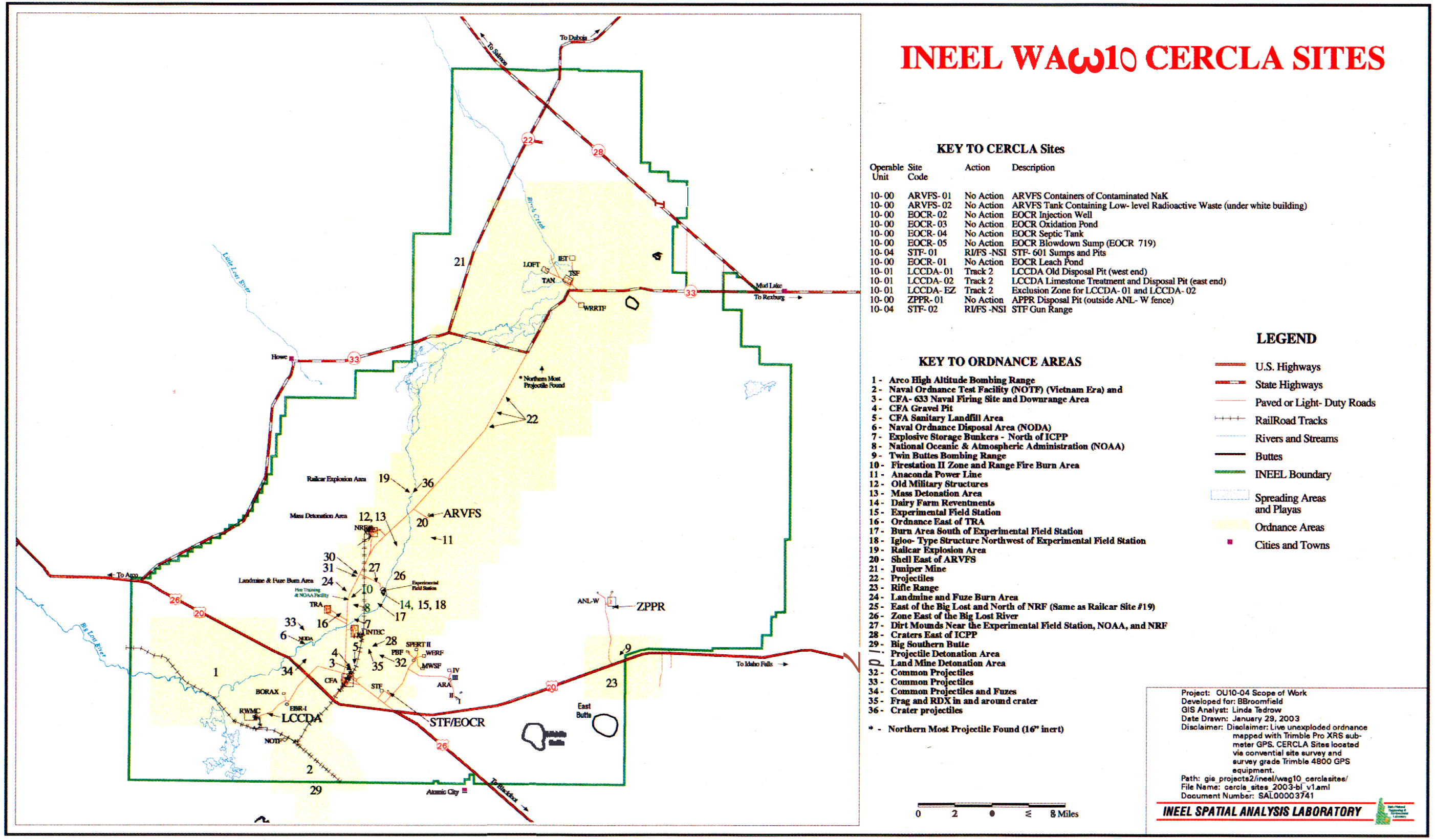


Figure 2-1. Location of Waste Area Group 6 at the Idaho National Engineering and Environmental Laboratory.



INEEL WAG10 CERCLA SITES

KEY TO CERCLA Sites

Operable Unit	Site Code	Action	Description
10-00	ARVFS-01	No Action	ARVFS Containers of Contaminated NaK
10-00	ARVFS-02	No Action	ARVFS Tank Containing Low-level Radioactive Waste (under white building)
10-00	BOCR-02	No Action	BOCR Injection Well
10-00	BOCR-03	No Action	BOCR Oxidation Pond
10-00	BOCR-04	No Action	BOCR Septic Tank
10-00	BOCR-05	No Action	BOCR Blowdown Sump (EOCR 719)
10-04	STF-01	RI/FS -NSI	STF-601 Sumps and Pits
10-00	BOCR-01	No Action	BOCR Leach Pond
10-01	LCCDA-01	Track 2	LCCDA Old Disposal Pit (west end)
10-01	LCCDA-02	Track 2	LCCDA Limestone Treatment and Disposal Pit (east end)
10-01	LCCDA-EZ	Track 2	Exclusion Zone for LCCDA-01 and LCCDA-02
10-00	ZPPR-01	No Action	APPR Disposal Pit (outside ANL-W fence)
10-04	STF-02	RI/FS -NSI	STF Gun Range

KEY TO ORDNANCE AREAS

1 - Arco High Altitude Bombing Range
2 - Naval Ordnance Test Facility (NOTF) (Vietnam Era) and
3 - CFA- 633 Naval Firing Site and Downrange Area
4 - CFA Gravel Pit
5 - CFA Sanitary Landfill Area
6 - Naval Ordnance Disposal Area (NODA)
7 - Explosive Storage Bunkers - North of ICPP
8 - National Oceanic & Atmospheric Administration (NOAA)
9 - Twin Buttes Bombing Range
10 - Firestation II Zone and Range Fire Burn Area
11 - Anaconda Power Line
12 - Old Military Structures
13 - Mass Detonation Area
14 - Dairy Farm Reventments
15 - Experimental Field Station
16 - Ordnance East of TRA
17 - Burn Area South of Experimental Field Station
18 - Igloo- Type Structure Northwest of Experimental Field Station
19 - Railcar Explosion Area
20 - Shell East of ARVFS
21 - Juniper Mine
22 - Projectiles
23 - Rifle Range
24 - Landmine and Fuze Burn Area
25 - East of the Big Lost and North of NRF (Same as Railcar Site #19)
26 - Zone East of the Big Lost River
27 - Dirt Mounds Near the Experimental Field Station, NOAA, and NRF
28 - Craters East of ICPP
29 - Big Southern Butte
30 - Projectile Detonation Area
31 - Land Mine Detonation Area
32 - Common Projectiles
33 - Common Projectiles
34 - Common Projectiles and Fuzes
35 - Frag and RDX in and around crater
36 - Crater projectiles

* - Northern Most Projectile Found (16" inert)

LEGEND

- U.S. Highways
- State Highways
- Paved or Light-Duty Roads
- RailRoad Tracks
- Rivers and Streams
- Buttes
- INEEL Boundary
- Spreading Areas and Playas
- Ordnance Areas
- Cities and Towns

0 2 4 8 Miles

Project: OU10-04 Scope of Work
Developed for: BBroomfield
GIS Analyst: Linda Tedrow
Date Drawn: January 29, 2003
Disclaimer: Disclaimer: Live unexploded ordnance mapped with Trimble Pro XRS sub-meter GPS. CERCLA Sites located via convential site survey and survey grade Trimble 4800 GPS equipment.
Path: gis_projects2/ineel/wag10_cerclasites/
File Name: cercla_sites_2003-bl_v1.aml
Document Number: SAL00003741

INEEL SPATIAL ANALYSIS LABORATORY

Figure 2-2. Idaho National Engineering and Environmental Laboratory area with Waste Area Group 10 Comprehensive Environmental Response, Compensation, and Liability Act sites.

2.1.2 Contaminants of Concern

The contaminant of concern is UXO from aerial bombing practice, naval artillery testing, explosive storage-bunker testing, and ordnance disposal. Munitions used for bombing and target practice are likely to be inert, although it is suspected that some UXO might be present within the ranges.

2.1.3 Record of Decision Requirements

The Record of Decision (DOE-ID 2002) requires maintaining site access restrictions and land use control to inhibit inadvertent encounters with UXO until remediation is implemented. Then, based on analysis of residual hazard, potential land use will be determined. If it confirmed that all risk-posing UXO is removed, then land use control after remediation might not be required.

2.2 Trinitrotoluene/Royal Demolition Explosive-Contaminated Soil Sites

2.2.1 History

The five TNT/RDX-contaminated soil sites (Field Station, Fire Station, Land Mine Disposal Area, NOAA, and NODA) are contaminated by chemical compounds remaining from military ordnance testing involving low-order detonations.

2.2.2 Contaminants of Concern

Trinitrotoluene and RDX were identified as contaminants of concern, based on results of the human health risk assessment (DOE-ID 2001). Contamination consists of larger fragments of TNT and RDX that could pose an explosives hazard, and TNT and RDX that have dissolved into the soil, thereby resulting in unacceptable risk from ingestion and dermal exposure to the 100-year hture resident and the current and future worker.

2.2.3 Record of Decision Requirements

The Record of Decision (DOE-ID 2002) requires restricted land use to prevent exposure to TNT/RDX-contaminated soil and exposure to the physical hazards associated with fragments of TNT and RDX until remediation is implemented. Following completion of remedial action, land use controls will be reevaluated based on residual risk.

2.3 STF-02 Gun Range

2.3.1 History

The STF-02 Gun Range is part of the former STF, which is approximately 3 km (2 mi) east of the Central Facilities Area. Between 1983 and 1990, INEEL security personnel fired approximately 4 to 5 million rounds of ammunition into targets erected on six earthen berms and in a wooden building (the "shooting house"). Most of the rounds were directed toward the northern soil-impact berm where 10 railroad ties held targets. The bullets fragmented and pulverized on impact with the railroad ties and with the soil and other bullets in the berm. Some fragments ricocheted beyond the berm into the "kickout" area. Bullet debris extends northward approximately 600 ft. An adjacent dry pond is also contaminated with bullet fragments.

2.3.2 Contaminants of Concern

The human health risk at the STF-02 Gun Range is from lead. The average concentration exceeds the EPA's (Region 9) 400-mg/kg preliminary remediation goal for lead, indicating a risk for unrestricted land use (DOE-ID 2001).

2.3.3 Record of Decision Requirements

The OU 10-04 Record of Decision (DOE-ID 2002) requires restricted land use to prevent unacceptable exposure to lead contamination in soil, until remediation is implemented. Institutional controls, such as warning signs and access controls, will be used to restrict land use; therefore, no O&M activities will be necessary beyond annual assessment and maintenance of signs, as prescribed in the Sitewide Institutional Controls Plan (footnote a). Land use controls are not expected after remediation, as all contamination above unrestricted land-use remediation goals will be removed from the site.

2.4 BORAX II–V Leach Pond

2.4.1 History

The BORAX II–V leach pond was used from 1954 to 1964 for collecting low-level radioactively contaminated liquid discharges from the BORAX II–V experiments. The BORAX II–V leach pond was located approximately 1.2 km (0.8 mi) north of EBR-I and about 18 m (60 ft) south of the BORAX cooling tower. Waste was piped from the turbine and reactor building to the pond. The effluents evaporated or seeped into the ground. In 1984, the pond was backfilled with clean soil.

2.4.2 Contaminants of Concern

The estimated baseline risk is 4E-05 for the 100-year future resident. The risk is from exposure to Cs-137. Risks to the current and 100-year future worker are 2E-04 and 2E-05, respectively, because of external exposure to Cs-137 (DOE-ID 2001).

2.4.3 Record of Decision Requirements

The OU 10-04 Record of Decision (DOE-ID 2002) requires the restriction of land use to prohibit exposure to radiologically contaminated soil. Institutional controls, such as warning signs and access controls, will be used to restrict land use; therefore, no O&M activities will be necessary beyond annual assessment and maintenance of signs, as prescribed in the Sitewide Institutional Controls Plan (footnote a). Institutional controls will be maintained until they are discontinued by the Agencies, based on the results of a 5-year review. Recommendations for appropriate land-use restrictions will accompany any land transfer.

2.5 BORAX-I Reactor Burial Site

2.5.1 History

The BORAX-I reactor burial site is located about 832 m (2,730 ft) northwest of the EBR-I reactor building. In 1953, the BORAX reactor was constructed, and after a period of testing, it was intentionally destroyed in 1954. The structures and contaminated soil were buried in place in 1955.

2.5.2 Contaminants of Concern

The estimated baseline risk is 4E-05 for the 100-year future resident. The risk is from exposure to Cs-137. Risks to the current and 100-year future worker are 2E-04 and 2E-05, respectively, because of external exposure to Cs-137 (DOE-ID 2001).

2.5.3 Record of Decision Requirements

The OU 10-04 Record of Decision (DOE-ID 2002) requires the restriction of land use to prohibit exposure to radiologically contaminated soil. Institutional controls, such as warning signs and access controls, will be used to restrict land use; therefore, no O&M activities will be necessary beyond annual assessment and maintenance of signs, as prescribed in the Sitewide Institutional Controls Plan (footnote a). Institutional controls will be maintained until they are discontinued by the Agencies, based on the results of a 5-year review. Recommendations for appropriate land-use restrictions will accompany any land transfer.

2.6 Boiling Water Reactor Experiment Ditch

2.6.1 Boiling Water Reactor Experiment Ditch

The **BORAX** ditch was the site of a radionuclide-contaminated drainage ditch associated with the **BORAX** II–V reactor experiments. Wastewater was piped from the reactor building to the ditch, where it evaporated or seeped into the ground. In 1995, a non-time-critical removal action, which focused on Cs-137 as the contaminant of concern, was conducted. This non-time-critical removal action resulted in removal of about 890 m^3 (1,178 yd^3) of radionuclide-contaminated soil. The ditch was then backfilled and graded flat.

2.6.2 Contaminants of Concern

The estimated baseline risk is 4E-05 for the 100-year future resident. The risk is from exposure to Cs-137. Risks to the current and 100-year future worker are 2E-04 and 2E-05, respectively, because of external exposure to Cs-137 (DOE-ID 2001).

2.6.3 Record of Decision Requirements

The OU 10-04 Record of Decision (DOE-ID 2002) requires the restriction of land use to prohibit exposure to radiologically contaminated soil. Institutional controls, such as warning signs and access controls, will be used to restrict land use; therefore, no O&M activities will be necessary beyond annual assessment and maintenance of signs, as prescribed in the Sitewide Institutional Controls Plan (footnote a). Institutional controls will be maintained until they are discontinued by the Agencies, based on the results of a 5-year review. Recommendations for appropriate land-use restrictions will accompany any land transfer.

2.7 BORAX II–V Reactor Building

2.7.1 History

The **BORAX** II–V reactor building site consists of entombed belowground structures remaining from the Argonne Experimental Facility. Underground items include reactor vessels, a water storage pit (now dry), equipment pit, subreactor room, utility pipe trench, and a dry storage pit. The area around the site is enclosed with chain-link and barbed wire fencing and is posted as a radiation area to restrict entry.

2.7.2 Contaminants of Concern

The estimated baseline risk is 4E-05 for the 100-year future resident. The risk is from exposure to Cs-137. Risks to the current and 100-year future worker are 2E-04 and 2E-05, respectively, because of external exposure to Cs-137 (DOE-ID 2001).

2.7.3 Record of Decision Requirements

The OU 10-04 Record of Decision (DOE-ID 2002) requires the restriction of land use to prohibit exposure to radiologically contaminated soil. Institutional controls, such as warning signs and access controls, will be used to restrict land use; therefore, no O&M activities will be necessary beyond annual assessment and maintenance of signs, as prescribed in the Sitewide Institutional Controls Plan (footnote a). Institutional controls will be maintained until they are discontinued by the Agencies, based on the results of a 5-year review. Recommendations for appropriate land-use restrictions will accompany any land transfer.

2.8 EBR-I Fuel Oil Tank

2.8.1 History

The EBR-I fuel oil tank is a steel 16,086-L (4,250-gal) underground storage tank that contained No. 2 diesel heating fuel. Records indicate the tank was installed in 1952, was last used in 1988, and was never used for waste disposal. In 1989, the tank was emptied, and, in 1990, the tank and associated piping were removed when it was discovered that the tank had leaked. The diesel-contaminated soil was subsequently removed. However, two potentially contaminated areas might still exist because (1) a sewer line in the excavation's south side prevented soil removal deeper than 1.5 m *(5* ft) due to equipment limitations, and (2) a radiologicially contaminated overhead trolley located 0.6 m (2 yd) east of the excavation hindered soil removal from an area east of the excavation.

2.8.2 Contaminants of Concern

The estimated baseline risk assessment is 7E-06 for the current resident. The risk is from exposure to total petroleum hydrocarbon in the soil (DOE-ID 2001).

2.8.3 Record of Decision Requirements

The Record of Decision (DOE-ID 2002) requires restricting the site to industrial land use. Institutional controls, such as warning signs and access controls, will be used to restrict land use; therefore, no O&M activities will be necessary beyond annual assessment and maintenance of signs, as prescribed in the "Idaho National Engineering and Environmental Laboratory Sitewide Institutional Controls Plan (Draft)" (footnote a). Institutional controls will be maintained until they are discontinued by the Agencies, based on the results of a 5-year review. Recommendations for appropriate land-use restrictions will accompany any land transfer.

2.9 Organic-Moderated Reactor Experiment Leach Pond

2.9.1 History

The OMRE leach pond was used for wastewater disposal from the OMRE reactor. The reactor was operated from 1957 to 1963 and was located about 3.25 km (2 mi) east of the Central Facilities Area. During reactor operation, wastewater was piped to the pond, where it evaporated or seeped into

the ground. In 1979, a portion of the pond's soil was excavated and disposed of at the Radioactive Waste Management Complex. However, the cleanup goal at the time was 1,000 pCi/g, and it is thought that contaminated soil up to this limit remains in place. The pond has since been backfilled, and the area has been revegetated with grass.

2.9.2 Contaminants of Concern

The estimated baseline risk for this site is 9E-05 for the 100-year hture resident. The risk is from exposure to Cs-137. Risks to the current and 100-year hture worker are 1E-04 and 2E-05, respectively, because of external exposure to Cs-137 (DOE-ID 2001).

2.9.3 Record of Decision Requirements

The OU 10-04 Record of Decision (DOE-ID 2002) requires the restriction of land use to prohibit exposure to radiologically contaminated soil. Institutional controls, such as warning signs and access controls, will be used to restrict land use; therefore, no O&M activities will be necessary beyond annual assessment and maintenance of signs, as prescribed in the Sitewide Institutional Controls Plan (footnote a). Institutional controls will be maintained until they are discontinued by the Agencies, based on the results of a 5-year review. Recommendations for appropriate land-use restrictions will accompany any land transfer.

2.10 Juniper Mine

2.10.1 History

In 1974, the Juniper Mine was used to conduct seismic tests using high explosives. Four of the five explosions detonated during the tests occurred in the Juniper Mine's vertical shaft. The high explosive used, called IREGEL 376, contained ammonium nitrate as its primary ingredient. One test detonation — designated HE-3 and occurring on September 18, 1974 — apparently failed, leaving approximately 7,258 kg (16,000 lb) of high explosives buried in the mineshaft at a depth of 29 m (95 ft). A subsequent test detonation at a depth of 18 m (59 ft) on October 17, 1974, apparently failed to detonate the HE-3 charge (Navarro 1975). Up to six 1-lb TNT-based explosive boosters and an undetermined amount of severed detonation cord also might remain.[b]

The high explosives remaining in the Juniper mineshaft are located at a depth of approximately 29 m (95 ft). The mineshaft has been backfilled to the surface. The *Preliminary Scoping Track 2 Summary Report for Operable Unit 10-03 Ordnance* (DOE-ID 1998) concluded that even if the entire mass of residual explosives could be detonated, "a hazard would not be produced above the ground, because of the amount of soil in the shaft and the depth of the explosives." The IREGEL 376 vendor" stated that the explosive would likely not detonate even if the remaining boosters were detonated. The vendor also stated that it is unlikely the explosive would detonate if struck by a drill bit, excavator, etc. However, the boosters would likely remain capable of detonation indefinitely and could be set off if struck by a drill bit or excavator.

The depth to groundwater in the area is estimated at 126 m (413 ft), based on measurements from two United States Geological Survey wells located approximately 3 km *(5* mi) north-northeast of the Juniper Mine. The mineshaft and upper aquifer in this area are located in a rhyolite rock formation, which

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b. Richard Green, Bechtel BWXT Idaho, LLC, personal communication, May 30,2001.

c. Partrick S. Weber, Dyno Nobel, personal communication, May 29, 2001.

typically is less fractured than basalt and likely to be less transmissive. The potential for groundwater contamination by nitrate, the only regulated constituent present in IREGEL 376, was evaluated using *GWSCREEN: A Semi-Analytical Model for Assessment of the Groundwater Pathway from Surface or Buried Contamination, Version 2.5* (Rood 1998). The results, which are summarized in the *Comprehensive Remedial Investigation/Feasibility Study for Waste Area Groups 6 and 10 Operable Unit 10-04* (DOE-ID 2001), showed that groundwater concentrations of nitrate in the upper aquifer directly below the mine shaft would be less than the 10-mg/L drinking water standard.

2.10.2 Contaminants of Concern

An estimated 16,000 lb of explosive material might remain buried 29 m (95 ft) below ground.

2.10.3 Record of Decision Requirements

The OU 10-04 Record of Decision (DOE-ID 2002) requires maintaining land use control to prevent intrusion into buried explosive material. Institutional controls, such as warning signs and access controls, will be used to restrict land use; therefore, no O&M activities will be necessary beyond annual assessment and maintenance of signs, as prescribed in the Sitewide Institutional Controls Plan (footnote a). Institutional controls will be maintained until they are discontinued by the Agencies, based on the results of a 5-year review. Recommendations for appropriate land-use restrictions will accompany any land transfer.

3. DESCRIPTION OF OPERATIONS AND MAINTENANCE

3.1 Institutional Controls

The DOE will implement and maintain institutional controls at CERCLA sites at the INEEL where contamination precludes unrestricted use. The DOE ensures that institutional controls will be in effect over the next 100 years or more, unless a 5-year review concludes that unrestricted land use is allowable and institutional controls are no longer required. Institutional controls will not be required if (1) all contaminated media are removed, (2) contamination concentrations are comparable to local background values, or (3) residual concentrations allow unrestricted use.

All institutional control requirements for OU 10-04 sites—including implementation, maintenance, inspection, monitoring, enforcement, and reporting—are addressed in the Sitewide Institutional Controls Plan (footnote a). Institutional controls and related components are summarized in Table 3-1. The

Table 3-1. Institutional controls and comnonents for Onerable Unit 10-04 sites.

Site Name	Record of Decision Determination	Institutional Controls and Components[b]
Ordnance Areas: Naval Gun Range, Arco High-Altitude Bombing Range, and Twin Buttes Bombing Range	Remedial action (to be conducted in Phase IV)[a]/institutional controls	Controls Visible access restrictions Control activities Control land use Tools Warning signs Restrict drilling, excavation, and other land disturbance INEEL *Comprehensive Facility and Land Use Plan* (DOE-ID 1997)
TNT/RDX-Contaminated Soil Sites: Field Station, Fire Station, Land Mine Disposal Area, NOAA, and NODA	Remedial action (to be conducted in Phase II)[a]/institutional controls	
STF-02 Gun Range	Remedial action (to be conducted in Phase III)[a]/institutional controls	
BORAX II–IV Leach Pond	Institutional controls	
BORAX-I Burial Site	Institutional controls	
BORAX Ditch	Institutional controls	
BORAX II–IV Reactor Building	Institutional controls	
EBR-I Fuel Oil Tank	Institutional controls	
OMRE Leach Pond	Institutional controls	
Juniper Mine	Institutional controls	

a. Details of the remedial actions' scope for future phases of OU 10-04 remediation are described in the *Operable Units 6-05 and 10-04, Experimental Breeder Reactor-I/Boiling Water Reactor Experiment Area and Miscellaneous Sites, Remedial Design/Remedial Action Scope of Work* (DOE-ID *2003)*.
b. Details of the institutional control requirements are described in the Sitewide Institutional Controls Plan (see footnote a).
BORAX = Boiling Water Reactor Experiment
EBR-I = Experimental Breeder Reactor I
INEEL = Idaho National Engineering and Environmental Laboratory
NOAA = National Oceanic and Atmospheric Administration
NODA = Naval Ordnance Disposal Area
OMRE = Organic-Moderated Reactor Experiment
OU = operable unit
RDX = Royal Demolition Explosive
STF = Security Training Facility
TNT = trinitrotoluene

Sitewide Institutional Controls Plan is the principal document governing establishment, implementation, enforcement, and monitoring of institutional controls at all INEEL sites requiring institutional controls under CERCLA (42 USC § 9601 et seq.). The Sitewide Institutional Controls Plan was developed in accordance with the OU 10-04 Record of Decision requirements (DOE-ID 2002). Institutional controls for all OU 10-04 sites include land use restrictions and for several sites, there are also physical-access restrictions and/or a CERCLA sign.

For access to the ordnance areas and TNT/RDX-contaminated soil sites, permission from the WAG 6/10 remediation project manager must be obtained. Signs posted at logical points of entrance and at intervals along the perimeter of the areas identify the potential hazards, provide a point of contact, and stipulate that permission from the WAG 6/10 manager is required before entry. Other access controls include training, escort requirements, and restrictions on land use. All personnel performing fieldwork at the INEEL must complete a training course on recognition of UXO, which also identifies areas at the INEEL with known or potential UXO. In order to conduct work within the ordnance areas and the TNT/RDX-contaminated soil sites, workers must be trained to recognize ordnance and explosives, understand the hazards, and become familiar with the reporting requirements. An excavation permit is required for any work involving land disturbance, such as drilling or excavation, which must be approved by an Explosive Ordnance Disposal (EOD) –qualified health and safety officer (HSO) who is familiar with the UXO areas at the INEEL and will determine if a survey for UXO is required before fieldwork can commence. Visitors to these sites must be escorted by a trained worker or the HSO.

At STF-02, CERCLA signs are posted and there are INEEL procedures that prohibit disturbance of the site until remediation has been completed. Industrial land use requirements are established for the EBR-I fuel oil tank, pending 5-year review. For all other sites requiring institutional controls, radiological work permits are required for entry, and land use restrictions will accompany any land transfer.

3.2 Environmental Monitoring

Ecological monitoring is the only type of monitoring to be conducted in Phase I remediation of OU 10-04 sites. In accordance with the provisions of the OU 10-04 Record of Decision (DOE-ID 2002), the *Long-Term Ecological Monitoring Plan for the Idaho National Engineering and Environmental Laboratory* (INEEL 2003) will be implemented to ensure protection of the INEEL's ecosystem. The purpose of the long-term ecological monitoring is to eliminate uncertainty in the INEEL-wide ecological risk assessment, allow coordination with ongoing environmental monitoring efforts, allow coordination with other agency activities, and address stakeholder concerns.

As stated in the OU 10-04 Record of Decision (DOE-ID 2002), OU 10-08 is responsible for groundwater monitoring; hence, groundwater monitoring is not an activity for OU 10-04. Any postremediation monitoring required for the remediation sites will be determined once the remedial action Phases II–IV have been completed.

3.3 Operation and Maintenance

Nine sites identified in the OU 10-04 Record of Decision (DOE-ID 2002) require remedial action, which will be performed in future phases of OU 10-04 remediation. Until remediation of these sites is performed, institutional controls to protect human health will be established and maintained. Seven sites are identified in the Record of Decision as requiring only institutional control. The institutional control requirements for all 16 sites are addressed in the Sitewide Institutional Controls Plan (footnote a). The institutional controls will remain in place until it is determined during a 5-year review that they are no longer necessary.

Meanwhile, because the phased approach for remediation delays removal of ordnance and explosives, interim removal, in place detonation, or isolation during Phase I remedial action will be performed for ordnance and explosives discovered during routine operations at the INEEL that are determined by qualified explosives experts to pose an unacceptable near-term physical hazard. These interim removal, detonation, and isolation actions are intended to address only the imminent safety hazard posed by the presence of ordnance and explosives, not the cleanup requirements that can be deferred for later action in future OU 10-04 remediation phases. Requirements for addressing ordnance and explosives during Phase I are described in the following section.

3.3.1 Removal or Isolation of Ordnance and Explosives

Ordnance and explosives exist in the ordnance areas and the TNT/RDX-contaminated soil areas. At the ordnance areas, unacceptable risk from potential UXO has been identified. Remediation of the ordnance areas for UXO is planned for Phase IV remedial action for OU 10-04. At the TNT/RDX-contaminated soil sites, unacceptable risks have been identified from TNT/RDX soil contamination and residual solid fragments of explosive material. Remediation of the TNT/RDX contamination is planned for Phase II remedial action for OU 10-04. The TNT/RDX-contaminated soil sites also are within the ordnance areas and might contain UXO. Remediation of any UXO at the TNT/RDX sites will be performed as part of Phase IV, unless UXO removal is required before contaminated soil and TNT/RDX fragments can be removed, as specified in the OU 10-04 Record of Decision (DOE-ID 2002).

Since the phased approach to remediation of OU 10-04 sites delays removal of ordnance and explosives from these sites, there is a potential for discovery of surface ordnance and explosives during routine operations (such as performing ecological monitoring, drilling new groundwater monitoring wells, and performing a site walk-down after a range fire) that could pose an unacceptable, imminent physical hazard to INEEL workers or the public before remediation of these areas is completed. Therefore, a mechanism is needed to address surface ordnance and explosives, which are determined by explosive experts to pose an imminent safety hazard, before remediation is conducted in future remedial actions. The overall risk from the ordnance and explosives depends on the potential access to the ordnance and explosive-impacted area, the potential for exposure to ordnance and explosive items, and the hazard of the ordnance and explosive type. The Agencies negotiated an agreement—documented in the OU 10-04 Scope of Work (DOE-ID 2003)—that provides for preremedial action removal, inplace detonation, or isolation of such ordnance and explosives. The intent of removal, detonation, and isolation is to address only the near-term physical hazard and not contamination that can be deferred to the hture remedial action phases. Thus, discovery of ordnance and explosives requiring evaluation for removal or isolation will not necessarily initiate efforts to detect, map, and remove potential ordnance and explosives near the ordnance and explosives identified for evaluation.

Potential ordnance and explosives discovered by field workers will be reported to the site manager and the INEEL EOD-qualified HSO. The HSO, with assigned explosive experts, will assess the physical hazard of the item(s). The fundamental assumptions or premises about ordnance and explosive-related hazards at the INEEL are as follows:

- Each type of ordnance and explosive exhibits a characteristic potential to detonate if disturbed and if detonated and produces potential impacts of a particular nature and magnitude

- Surface ordnance and explosives are most likely to be encountered or disturbed by current and near-term activities and, therefore, pose a higher risk than buried ordnance and explosives

- There is greater potential for explosive hazard when opportunity for worker or public exposure is greatest (i.e., at or near an operating facility or ongoing remediation effort, at areas easy to access and use, and where other features make uncontrolled public access possible).

The principal elements of the hazard assessment include probability of exposure to ordnance and explosives, the likelihood of ordnance and explosive detonation if encountered, and the consequence of ordnance and explosive detonation. The hazard assessment will be based on the following:

- Ordnance and Explosive Characteristics — Ordnance and explosive characteristics include the type, size, and detonation sensitivity of the ordnance and explosive items found. Different types of ordnance and explosives have different potentials for detonation when disturbed and, if detonated, can produce a range of consequences.

- Ordnance and Explosive Accessibility — Ordnance and explosive accessibility is the potential for direct contact with ordnance and explosive items. Ordnance and explosive accessibility is higher in areas where earth disturbance and excavation activities are likely to occur.

- Public and Worker Exposure — Public and worker exposure depends on the nature of public and worker access and the activities performed in the area. A greater potential for explosive hazards occurs when people interact with the land more intensively or more frequently.

Every ordnance and explosive item to be investigated will be identified in terms of its type, size, and condition. The ordnance and explosive items will be fully characterized using applicable technical manuals (including U.S. Department of Defense Joint Services Technical Manual-60 Series documents) and, if necessary, active EOD units and other technical EOD resources to identify the type, sensitivities, and hazards of the ordnance and explosives. The EOD-qualified HSO and explosive experts will evaluate the condition of the ordnance and explosives, particularly the type and condition of the fuse. The fuse/alarm status will be established to determine the hazard. If the fuse condition cannot be determined or is questionable, the fuse condition will be considered armed. Figure 3-1 shows the methodology for performing hazard assessments of surface ordnance and explosives discovered during Phase I remediation of OU 10-04.

For low-hazard ordnance and explosives, an exclusion zone will be established and maintained until remediation is completed in Phase II or Phase IV. This includes marking the ordnance and explosives, determining the distance of the exclusion zone based on the estimated weight of the ordnance and explosives, posting signs, and establishing a tape barrier (if deemed necessary) around the perimeter of the exclusion zone.

Ordnance and explosives determined to be a high hazard will be removed if safe to handle, transported to the Mass Detonation Area (MDA), and destroyed by high-order detonation using additional explosives to initiate the detonation. No UXO items will be stockpiled overnight at the MDA. All UXO items collected and transported to the MDA in a day will be detonated the same day. If the HSO determines that the items cannot be safely transported, the UXO will be detonated in place after the proper documents are prepared and approved. Alternatively, the ordnance and explosives will be isolated by establishing a signed and fenced or barricaded exclusion zone. Fencing may be considered for use in areas where live UXO is present, immediate or near-term removal cannot be performed, and where public and or worker access to UXO could result in unintentional detonation. Fencing could be barbed wire, chain link, or both.

The locations of all ordnance, explosives, and observed and suspected soil contamination identified during Phase I will be mapped and recorded for hture disposition. These locations will be recorded

electronically in the INEEL Global Information System to provide an accurate record of the Phase I ordnance and explosive removal activities.

Ordnance and Explosive Characteristics Hazard Factor	Ordnance and Explosive Accessibility Hazard Factor	Public/Worker Exposure Hazard Factor
Subfactors	Subfactors	Subfactors
Ordnance and explosive hazard type Ordnance and explosive fusing Amount of energetic material (impact scale)	Level of land-use activity	Potential and frequency for uncontrolled public access Intensity of worker activity Portability

Low Relative Hazard Level:	Potential Action:
Inert ordnance and explosives that will not cause injury and ordnance and explosives that can cause minor injury only under extreme conditions	Mark ordnance and explosives and isolate by creating an exclusion zone; the explosive experts will determine the distance of the exclusion zone based on estimated explosive weight and or fragment distance.
High Relative Hazard Level:	Potential Action:
Ordnance and explosives that can cause major injury or death if detonated by an individual's activities	Remove for detonation at the Mass Detonation Area, detonate in place if unsafe to move; or mark ordnance and explosive item, place signs at logical routes to the area, and construct a fence or other barrier around the exclusion zone.

Figure 3-1. Flowchart of methodology for ordnance and explosive hazard assessment.

3.4 Five-Year Reviews

In accordance with the "National Oil and Hazardous Substances Pollution Contingency Plan" (40 CFR 300) for sites where contamination is left in place above risk-based levels for unrestricted use, a review of the selected remedy will be conducted every 5 years until it is determined by the Agencies to be unnecessary. During the 5-year review, the remedy is evaluated to determine if it remains protective of human health and the environment. The review also includes an evaluation of new data that could change the monitoring or controls in place for the sites.

4. OPERATIONS AND MAINTENANCE IMPLEMENTATION

This section summarizes the activities needed to implement the Phase I O&M requirements for OU 10-04. These activities include inspection; assessment of surface ordnance and explosives identified during routine operations, and removal or isolation of ordnance and explosives that present an unacceptable near-term physical hazard; outlining the organizational practices that will drive the O&M activities; and specifying the individuals responsible for performing the activities.

4.1 Organization and Responsibilities

4.1.1 U.S. Department of Energy Idaho Operations Office Project Manager

The U.S. Department of Energy Idaho Operations Office (NE-ID)[d] WAG 6/10 remediation project manager is responsible for the following:

- Ensuring that the O&M activities are performed in accordance with this approved plan
- Coordinating the INEEL contractor's activities at WAG 6, OU 6-05 and WAG 10, OU 10-04.

4.1.2 Idaho National Engineering and Environmental Laboratory Management and Operations Contractor

As the point of contact for O&M activities, the INEEL contractor WAG 6/10 remediation project manager will be responsible for the following:

- Maintaining document control of inspection reports, including their placement in the project records file
- Administration of subcontracts for performing required activities
- Reporting activities to NE-ID.

4.2 Conducting Monitoring, Maintenance, and Inspections

The WAG 6/10 contractor will provide qualified personnel to perform the O&M activities for the remedial actions under the OU 10-04 Record of Decision (DOE-ID 2002). Personnel will be trained on the requirements of the approved plan before performing O&M activities. The INEEL contractor WAG 6/10 project manager is responsible for inspection implementation and reporting.

Annual inspections will be performed for the first 5 years. After 5 years, the Agencies may reevaluate the frequency of O&M activities.

4.2.1 Institutional Controls

Institutional controls will be implemented and maintained at the nine sites requiring remediation until remediation is completed. Institutional controls for the seven sites requiring only institutional controls will be in effect until it is determined by the Agencies during a 5-year review that institutional

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d. The abbreviation NE-ID signifies that the U.S. Department of Energy Idaho Operations Office (which was abbreviated DOE-ID before October 1, 2003) reports to the DOE Office of Nuclear Energy, Science, and Technology.

controls are no longer required. Requirements and frequency for institutional control inspection and maintenance are addressed in the Sitewide Institutional Controls Plan (footnote a). The inspections will address institutional control requirements for each site (such as identification and warning signs, visible access restrictions, administrative controls, and land-use restrictions).

4.2.2 Environmental Monitoring

Environmental monitoring will not be performed at the nine sites to be remediated in future remedial design/remedial action phases or at the seven sites requiring only institutional control. However, long-term ecological monitoring will be conducted as prescribed in the OU 10-04 Record of Decision (DOE-ID 2002). Details of the ecological monitoring are described in the *Long-Term Ecological Monitoring Plan for the Idaho National Engineering and Environmental Laboratory* (INEEL *2003)*.

4.2.3 Operations and Maintenance

No routine maintenance is planned for OU 10-04 sites during Phase I O&M. The only planned routine activities will involve inspections and maintenance of CERCLA signs, ordnance and explosive warning signs, and any existing physical access restrictions (e.g., fencing). Signs of unauthorized intrusion also will be monitored during the site inspections.

The removal, in place detonation, and isolation of ordnance and explosives at the ordnance areas and the TNT/RDX-contaminated soil sites will be performed by EOD-qualified experts. All EOD personnel will be U.S. citizens and graduates of the U.S. Army Bomb Disposal School, Aberdeen Proving Ground, Maryland; the U.S. Naval Explosive Ordnance Disposal School, Indian Head, Maryland; or the Ordnance Explosive School at Eglin Air Force Base, Florida. In addition, they shall never have been removed from an explosive ordnance disposal assignment for personnel reliability reasons or unsatisfactory performance of duties, as substantiated by official documentation. Credit for EOD experience in the Army National Guard or Reserve Units will be based on actual documented time spent on active duty, not on the total time of service.

The HSO and assigned explosive experts will perform evaluation of detected ordnance and explosives during Phase I O&M. For items posing a high hazard, the HSO and explosives experts will determine if items are safe to transport. If the items can be handled and transported safely, they will be transported to the MDA for destruction by high-order detonation, using explosives to initiate the detonation. (The MDA has been used in the past for similar disposal detonations.) If the items cannot be transported safely, the ordnance and explosives will be detonated in place after the proper approvals are obtained. Pieces of TNT/RDX fragments will be collected by glove hand methods before transportation and detonation at the MDA.

Only qualified explosive experts and personnel authorized by the HSO will be allowed on the detonation range or area where detonation operations are in progress. All activities, including transportation and detonations, will be performed using currently accepted practices and operating procedures listed in the project health and safety plan, including the "DOE Explosives Safety Manual" (DOE M 440.1-1). Notification will be made to the Agencies when ordnance and or explosives are discovered and evaluated; notification also will include a description of the action to be taken. The notification form is included as Appendix A.

5. REPORTING REQUIREMENTS

Reporting requirements related to institutional controls, environmental monitoring, O&M, and 5-year reviews are summarized in the following sections. The purpose of this reporting is to ensure that all activities are adequately documented and that related data and information are provided to the Agencies for review and decision-making. Although the following sections indicate separate reporting requirements and separate reports, the reporting requirements may be met by combining the information into a single annual report. The Agencies will review the frequency of all reporting identified in the following sections during the first 5-year review and may be changed to an alternative frequency. Annual reports will be submitted in the first quarter following the fiscal year of activities.

5.1 Institutional Control Reporting

Reporting requirements for institutional controls are specified in the Sitewide Institutional Controls Plan (footnote a). An institutional control monitoring report will be prepared and submitted to the Agencies for review and decision-making on an annual basis.

5.2 Environmental Monitoring Reporting

The only environmental monitoring to be conducted by OU 10-04 is the long-term ecological monitoring. Data and results from the ecological monitoring will be compiled and presented in an annual monitoring report. This annual report will be prepared and submitted to the Agencies for review and decision-making.

5.3 Operations and Maintenance Reporting

Data and results from annual inspections (information regarding site intrusions, warning signs, and physical access restrictions) will be compiled and presented in an annual report, which will be submitted to the Agencies for review and decision-making. The report will contain documentation of scheduled inspections, follow-up and contingency inspections, and maintenance activities. It will include:

- General OU description and operational history
- A summary of the inspection
- A summary of maintenance activities to date
- An estimate of maintenance activities required in the next year
- A copy of the appropriate inspection report forms.

Ordnance and explosive activities will be documented and submitted in a report to the Agencies at the end of each fiscal year in which ordnance and explosive activities were conducted.

5.4 Five-Year Review Reporting

Data and results from the annual reports for institutional controls, environmental monitoring, and operations and maintenance will be summarized and addressed in a 5-year review report. Additional content requirements for the report will be developed and included in the next revision of this O&M Plan, which is planned in conjunction with revision of the "Remedial Design/Remedial Action Work Plan for Operable Units 6-05 and 10-04, Phase I (Draft),"[e] for remediation of the TNT/RDX-contaminated soil sites.

e. DOE-ID, 2003, "Remedial Design/Remedial Action Work Plan for Operable Units 6-05 and 10-04, Phase I (Draft)," DOE/ID-11101, Revision C, U.S. Department of Energy Idaho Operations Office, December 2003.

6. REFERENCES

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Appendix A

INEEL Operable Units 6-05 and 10-04 Phase I Remediation Notification Form

Appendix A
INEEL Operable Units 6-05 and 10-04 Phase I Remediation Notification Form

Discovery and Preremedial Actions for Ordnance and Explosives

To: U.S. Environmental Protection Agency, Region 10
Idaho Department of Environmental Quality

From: U.S. Department of Energy, Idaho Operations Office

Date:

As documented in the Operable Units 6-05 and 10-04, Experimental Breeder Reactor-I/Boiling Water Reactor Experiment Area and Miscellaneous Sites, Remedial Design/Remedial Action Scope of Work, February 2003, DOE-ID agrees to remove, dispose or isolate surface ordnance and explosive material discovered during routine operations at the INEEL that pose an unacceptable imminent physical hazard prior to full remediation of the OU 10-04 ordnance areas and TNT/RDX contaminated soil sites.

The DOE-ID is issuing this notification of discovery of ordnance and or explosives to EPA and IDEQ, as stipulated in the Operations and Maintenance Plan for Operable Units 6-05 and 10-04, Phase I, August 2003, including notification of the actions planned or taken to address the physical hazard.

Date of ordnance/explosives discovery:	
Location:	
Number, type, and condition of ordnance/explosives discovered:	
Description of events leading to discovery:	
Has a safety evaluation been performed? **(No)** **(Yes)**	If No, when will a safety evaluation be conducted? If Yes, the hazard category determined is: ( ) High risk ( ) Moderate risk ( ) Low risk O Negligible/no risk
Recommended actions:	( ) Transport and detonate at the MDA ( ) Detonate in place ( ) Mark and isolate ( ) No action reauired at this time
Additional comments:	

Recommended action taken: (No) (Yes) (NA)	If No, when will action be taken?
	If Yes, date action was taken: